

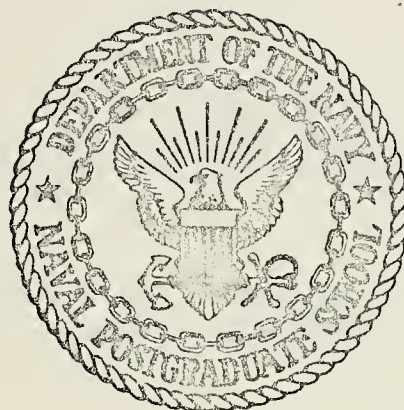
AN ANALYSIS OF ASSIGNMENT TECHNIQUES
AND PREDICTOR VARIABLES UTILIZED BY THE
U. S. MARINE CORPS GROUND
OFFICER ASSIGNMENT SECTION

Warren Shaw Walters

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THESIS

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VARIABLES UTILIZED BY THE U. S. MARINE CORPS GROUND
OFFICER ASSIGNMENT SECTION

by

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Thesis Advisor:

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June 1973

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An Analysis of Assignment Techniques and Predictor
Variables Utilized by the U. S. Marine Corps Ground
Officer Assignment Section

by

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Major, United States Marine Corps
B. S., United States Naval Academy, 1958

Submitted in partial fulfillment of the
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ABSTRACT

The assignment of Marine Corps officers to varying duties during a military career is a process of selection. The factors involved in this selection make up the predictor variables pertinent to the assignment. This study discusses the general techniques of officer assignment, and specifically analyses the predictor variable established by evaluating the performance record. Comparison is made with a system that numerically represents fitness-report contents by a single value which becomes the record-evaluation predictor variable.

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I. INTRODUCTION

A. BACKGROUND

Over the course of a 20 year span, a Marine ground (non-aviation) officer will likely attend one or more service schools and serve at six or more different duty stations. The process by which he is identified, evaluated, and selected for various assignments is a management function conducted within the Personnel Department of Headquarters Marine Corps. In many instances, the individual receiving orders has only a vague notion concerning the techniques by which he was considered for assignment, leaving him somewhat with the feeling of being on the receiving end in a chance system of "duty station roulette." Even the most pessimistic of these officers, however, must realize that while a single assignment officer is dealing with slightly over 1,000 officers in the field, there is some system in effect that is hopefully equitable, expedient, and credible.

There are, in fact, analytical methods by which the duty selections are made, with varying degrees of equitability, expedience, and credibility. It is the intent of this paper to present an evaluation of the most common record-appraisal methods utilized to obtain predictor variables in the assignment-selection process, along with an analysis of an appraisal technique that was tested for an 18-month period and gave indication of being a more useful personnel management device.

B. SELECTION THEORY

The main effort of study in the area of personnel selection has been placed upon initial hiring techniques and not upon subsequent re-assignment

within an organization, independent of pay raise or promotion. Nonetheless, certain fundamentals applicable to selection under any circumstances are evident in the literature. In a comprehensive summary of work in the field of selection, H. P. Bechtoldt (1951) stated four characteristics that can be distinguished. They are:

1. Selection of a few individuals from many is a process, whether applied once or on a recurring basis.
2. This process involves selection for some purpose.
3. Selection requires procedures for assigning individuals into classes appropriate to the objective of the selection process.
4. Selection implies prediction.

The first characteristic is universal in being applicable to an initial hiring technique or a continuing selection for placement purposes. It can be a formalized process based upon definite performance factors, or it can be an attitude indicative of continuing scrutiny of an individual's behavior. The second characteristic is obvious, for no process is likely to be undertaken without purpose.

The third characteristic is sometimes referred to as the classification problem. Bechtoldt points out that classification may be made in terms of any relevant attribute of the individual. The procedure for classification may require (1) interviews, (2) reports from observers or "judges," (3) records of past performances, or (4) direct observation. Military usage of the term classification is usually in relation to skill assignment, but for duty assignment purposes, an understanding that it refers to degrees of suitability for specific duty types is necessary.

The last characteristic, that selection implies prediction, is often termed the prediction problem. This characteristic is applicable to any assignment, for in most cases the placement in a specific job is based

upon a prediction that the individual can satisfactorily do the job or be a "success" in that position.

Research efforts dealing with the prediction problem are typically based upon two assessments made with a time interval in between. The initial assessment is the prediction and, in the terms of F. S. McKenna (1967), is based upon the predictor variables, or those personal attributes that are felt to indicate probable achievement of "success" in a certain job. The later assessment of actual performance on the job is termed the criterion variable. This is a measure of what actually is accomplished, or in other words, what degree of "success" is achieved. An example would be assignment of a military officer to a staff school based upon a high General Classification Test (GCT) score. This is the predictor variable. Actual class standing in the school upon completion would be the criterion variable or indicator of success achieved. If the predictor variable is a good one, there should be a strong relationship between it and the criterion variable, e. g., in this case, a high GCT score would hopefully indicate a high class standing.

Either the predictor variable or the criterion variable may consist of a single measure or a set of measures. The criterion variables are usually combined to express a single "measure of success" against which predictor variables are tested. Bechtoldt is very clear in stating, "When the selection process is a recurrent one, the criterion classification (variable) at an intermediate stage may be considered a predictor category (variable) for a later stage, and the final measure of success is then designated the 'ultimate' criterion."

The predictor variable has four desirable characteristics, according to McKenna. These are reliability, validity, objectivity, and quantitativeness. First, the predictor variable must be reliable, that is,

consistent from application to application. If the predictor variable is a performance record, each time it is analyzed, the results should be the same if the contents are unchanged. Secondly, the predictor must be valid in doing what it is designed to do. Hat size would not be a likely predictor of a chance for success in an assignment, whereas previous performance of duty has been identified as a more valid predictor. Thirdly, a predictor should be objective. This means the variable should be capable of being analyzed in terms of "is" or "isn't," "right" or "wrong," as opposed to subjective judgments being entered on an inconsistent "maybe" basis. The "maybe" element fluctuates depending on the whim of the individual making the judgment, and introduces a chance factor into the predictor. The last characteristic of a predictor is that it be quantitative, or simply that it can be expressed as a score or number. To classify an individual as "one of the best" or "a good man" or "a real water-walker" as opposed to a plain "water-walker" is hardly quantitative, and difficult to relate discriminately. Stating the predictor in terms of a standing, "28 out of 160" or "in the top 10% of grades," provides a better means of expressing the evaluation of an individual by a predictor variable.

For a selection process to be workable, it must provide a means of discriminating among the individuals being considered. If all people were identical, it wouldn't matter who did what, the results would be the same. Personal behaviors vary, however, and the wide performance range resulting from this variance must be ultimately scaled in some manner that provides for discrimination. Selection of the predictor variable in accordance with the four characteristics listed above is a beginning point, but the quantitative aspects of the predictor must also be examined for discriminatory capability. For example, if a predictor

variable for promotion to foreman was individual unit production, it may be reliable, valid, objective, and quantifiable, but provide little discriminatory capability if everyone produces within the narrow range of a union standard quantity. The predictor variable chosen must be capable of providing the selector with a means of discerning variations among individuals.

C. APPLICABILITY OF THEORY

Using these fundamental characteristics identified with selection and prediction, the basic relationships to the Marine Corps Officer assignment functions are as follows:

1. The assignment steps include the choosing of a few individuals from among many to go to a particular duty, and therefore, make up a process of selection.
2. This selection is for a purpose, i. e., it allows the assignment officer to complete a requirement given to him to place an individual in a certain job.
3. The consideration of individuals as suitable or unsuitable for a particular assignment is a classification appropriate to the objective of the selection process.
4. Selection of an individual for an assignment is a prediction that he will be able to meet the demands or "achieve success" in that duty.

The information the assignment officer or "monitor" utilizes to make his selection will include certain predictor variables, of which a major one is the past performance record of the officer being considered. This record can be interpreted in various ways, as can all the characteristics of predictor variables found in the performance record data. As a reliable predictor, the record is consistent. Past performance

markings don't change from a given point, and a record evaluation of 20 reports made at one time should be the same as the evaluation of the same 20 reports made at another time.

The validity of the reports as a predictor somewhat reflects the idea stated by M. D. Dunnette (1966) that one of the best predictors of future behavior is past behavior, even though it is difficult to know exactly how past behaviors relate to future behaviors that may be of interest.

The objectivity of the performance record is provided by its scalar entries used to evaluate most behavior characteristics and traits. This same scalar system is also what provides the capability for elements of the performance record to be expressed quantitatively, establishing a discriminatory relationship among cumulative records that can assist the monitor in making the selection.

II. ASSIGNMENT METHODOLOGY

A. ORGANIZATION AND BASIS FOR ASSIGNMENT

The monitor concept of officer assignment is not unique to the Marine Corps. The other services use a similar arrangement, wherein an officer within the senior headquarters is responsible for the assignment of a number of other officers, usually those contemporary or junior in rank. While the name applied to the individual may be the Navy term "detailer" or the Army term "OPO" (Officer Procurement Officer), the functions are similar.

Within the Marine Corps, the Officer Assignment Section is a portion of the Personnel Department, Headquarters Marine Corps. Presently, the assignment system operates on a basis of rank groupings, as indicated in Figure 1.

Within the four offices of the Ground Officer Assignment Unit, there are a total of four monitors and six assistant monitors, with a number of enlisted personnel providing document preparation, recording, and filing services. Currently, the monitored population is near 10,173 officers (March, 1973), so the monitor to field officer ratio is approximately one to 1000 on an aggregate basis. This number does vary from office to office, and serves only as a rough approximation of individual monitor workload.

Virtually all aspects of the placement problem take place within the Assignment unit. The requirements of the Marine Corps are established by Tables of Organization and manning levels developed by the Headquarters G-1 Section. The initial placement and continual flow of officers to meet these requirements is controlled by the monitors, who in essence are

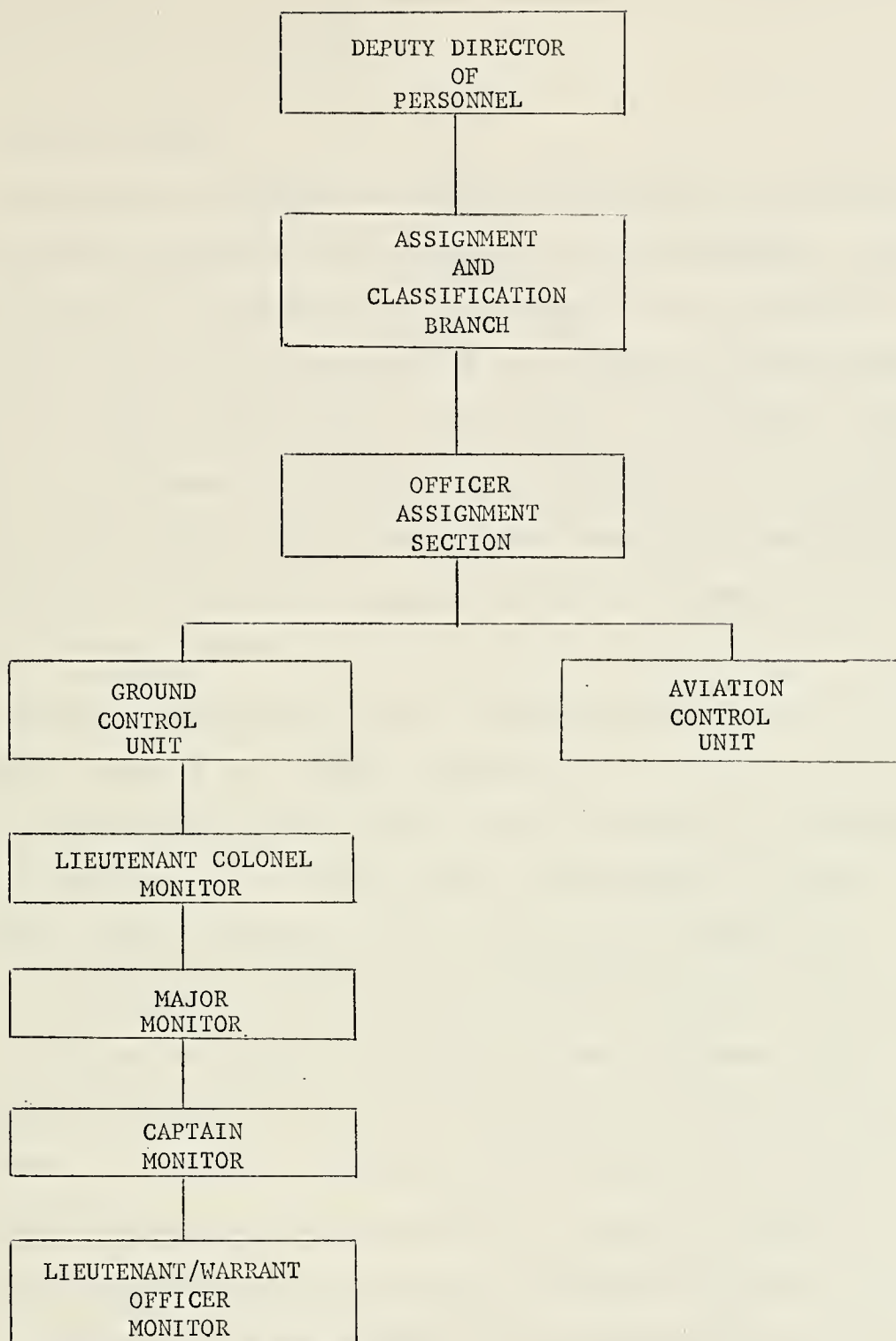


FIGURE 1. Organizational Relationship of Monitor Offices

continually watching the requirements to insure future assignments are consistent with future openings.

B. THE BASIC PROCESS

The process of assignment is controlled primarily by the provisions of an annually prepared document known as the "slate guidance." This document amplifies, interprets, or supplements the basic provisions concerning personnel moves established in the Assignment, Classification and Travel Systems (ACTS) Manual, (MCO P1000.6A). While various other aspects of assignments are contained in such documents as the Marine Corps Separation Manual (MCO P1900.16A) and Joint Travel Regulations, the bulk of the transactions are completed within the scope of the ACTS manual and slate guidance.

The simplest description of the assignment process is that it is a four-step procedure that unfolds as follows:

1. A requirement is established, either by creation of a new position or impending movement of an incumbent for any number of reasons. Any special criteria applicable to the requirement are identified.
2. A determination is then made of the qualifications of the individuals that may be initially considered for the requirement. This could include such areas as occupational specialties, educational background (civilian and military), language ability, family status, or any of numerous biographical factors available. Whichever elements are chosen, they function as basic predictor variables pertinent to the job established by the requirement. It is at this point that the evaluation of the individual's performance record is made as the predictor variable that in most cases will be the deciding factor in the assignment.

3. A determination of availability of possible candidates is made. This is a stability and economy factor in that it insures officers are considered who are essentially due for orders, e. g., finishing a specified overseas tour length, completing a school, or finishing the established normal tour for a billet within the continental United States. An excessive number of movements, cost of movements, or shortening of tours is avoided whenever possible.

4. The desires of the individual are taken into consideration based upon his latest three choices of duty. Where the requirement criterion allows sufficient flexibility, an effort will be made to match an individual's choice with an existing requirement.

The timing of this process varies with rank. Lieutenants and warrant officers are normally considered for assignment anywhere from 150 to 90 days prior to their move. Captains through colonels are dealt with primarily on an annual basis by preparation of a document called a slate. This is a listing that is normally issued in the spring, giving out the intended assignments that will occur during the coming fiscal year. Preparation of this document begins in the early fall and requires from four to six months. Once established, the slate is subject to modification to meet unexpected requirements due to sudden deaths, retirements, base-closures and the like.

C. THE DATA BASE

While numerous sources of data germane to the assignment process are available, only those pertaining to the determination of predictor variables will be discussed. The primary source of information is the case file or officer record maintained in a special section of Headquarters. This is a two-folder collection of virtually every document existent

pertaining to the individual. The first half is mostly administrative, containing orders, contracts, claims, inquiries, promotions, and the like. The second half is the selection portion, and contains educational requests and accomplishments, awards and decorations, unfavorable matter, and fitness reports.

As the fitness report is the source of the record evaluation which becomes a very influential predictor variable, it is necessary to develop its format and contents to some degree. The bulk of fitness reports presently on file are virtually identical to the Officer Fitness Report, U. S. Marine Corps 1611 (NAVMC 10147), illustrated in Figures 2a and 2b. Sections A and B contain basically non-evaluative administrative data. Section C is composed of scalar ratings of various performance, behavior, or trait items. Section D is a subjective verbal assessment of the officer being rated by the reporting senior. Minor variations do exist over a long span of the records made up by these reports, notably in the areas requiring (1) numerical comparison among all officers being reported on (beginning in 1960), and (2) changes in policy concerning evaluations made relative to certain duties, primarily schools.

In the summer of 1972, the fitness report format was changed to permit use of optical scanning equipment. The current form is the USMC Fitness Report 1610 (NAVMC 10385), illustrated in Figures 3a and 3b. In this new report, the factors in Section B of the previous form are incorporated into two other sections, resulting in an administrative data portion, Section A; a rating scale evaluation portion, Section B; and a subjective verbal description portion, Section C. Only minor variations in the qualities listed in the scalar ratings have been introduced, so the two fitness report formats are consistent for record evaluation purposes.

MAYMC 10147 (REV. 6-63)
(SUPERSEDES 2-57 AND 4-61 EDITIONS WHICH WILL BE USED)

EMBOSSED PLATE IMPRESSION (Name, Grade, Service No., MOS's)		EMBOSSED PLATE IMPRESSION (Organization)	
*1. NAME (Last) (First) (Middle initial)		GRADE USMC _____	SERVICE NO.
*2. ORGANIZATION			
*3. PRIMARY MOS		ADDITIONAL MOS's	
4. OCCASION FOR THIS REPORT (Check appropriate box)			
<input type="checkbox"/> SEMIANNUAL <input type="checkbox"/> DETACHMENT OF OFFICER REPORTED ON (Enter unit or station to which detached, below) <input type="checkbox"/> CHANGE OF REPORTING SENIOR <input type="checkbox"/> CONCURRENT REPORT <input type="checkbox"/> OTHER (Explain below)			
5. PERIOD COVERED: FROM (Day, month, year)		TO (Day, month, year)	MONTHS
6. PERIODS OF NONAVAILABILITY (30 DAYS OR MORE) (Explain)			
7. DUTY ASSIGNMENTS DURING PERIOD COVERED: A. REGULAR (Dates, descriptive title, and duty MOS)			
B. ADDITIONAL (Descriptive title and number of months)			MARKSMANSHIP QUALIFICATIONS (Lieutenants and Captains)
8. WIFE'S ADDRESS			
9. AGE, RELATIONSHIP OF DEPENDENTS REQUIRING TRANSPORTATION			
10. OFFICER'S PREFERENCE FOR NEXT ASSIGNMENT (1st choice)			
(2nd choice)		(3d choice)	
SIGNATURE OF OFFICER REPORTED ON			DATE
SECTION B (To be completed by reporting senior)			
11. NAME AND GRADE OF REPORTING SENIOR US _____		12. DUTY ASSIGNMENT	
13. RECOMMENDATIONS FOR OFFICER'S NEXT DUTY ASSIGNMENT			
14. DURING THE PERIOD COVERED BY THIS REPORT—			
		YES	NO
(a) Has the work of this officer been reported on in a commendatory way?		<input type="checkbox"/>	<input type="checkbox"/>
(b) Has the work of this officer been reported adversely?		<input type="checkbox"/>	<input type="checkbox"/>
(c) Was this officer the subject of any disciplinary action that should be included on his record?		<input type="checkbox"/>	<input type="checkbox"/>
15. A. ENTRIES ON THIS REPORT ARE BASED ON (Check appropriate box)		15. B. TO BE COMPLETED ON ORGANIZED RESERVE OFFICERS	
<input type="checkbox"/> DAILY CONTACT AND CLOSE OBSERVATION OF THIS OFFICER'S WORK <input type="checkbox"/> FREQUENT OBSERVATIONS OF THIS OFFICER'S WORK <input type="checkbox"/> INFREQUENT OBSERVATIONS OF THIS OFFICER'S WORK		ATTENDED _____ OF _____ SCHEDULED DRILLS	

* If embossed plate impression is used, do not complete Items 1, 2, and 3.

18

— See reverse for instructions —

SECTION A. COMPLETED BY MARINE REPORTED ON (USE OCR-FONT TYPEWRITER ONLY—SEE REVERSE)	PROGRAM		1. ORGANIZATION a. MCC b. RUC		c. DESCRIPTIVE TITLE (Abbreviate as required)						
	2. MARINE REPORTED ON a. LAST NAME		b. FIRST NAME		c. M.I.	d. GRADE	e. IDENTIFICATION NO.	f. PMOS	g. STATUS		
	3. OCCASION AND PERIOD COVERED a. OCC. b. PERIOD: FROM-TO		c. TYPE		d. PERIODS OF NONAVAILABILITY (30 or more consecutive days)—EXPLAIN						
	4. FIRST REGULAR DUTY a. DESCRIPTIVE TITLE		b. MONTHS		c. T/O NO.	d. LINE NO.	e. DuMOS	6. SPECIAL INFORMATION a. QUALIFICATION b. OTHER (Use only when directed)			
	5. SECOND REGULAR DUTY a. DESCRIPTIVE TITLE		b. MONTHS		c. T/O NO.	d. LINE NO.	e. DuMOS	7. RESERVED FOR FUTURE USE			
	9. DEPENDENTS REQUIRING TRANSPORTATION a. NO. b. LOCATION c. ADDRESS						8. ORGANIZED RESERVE DRILLS ATTN. SKED.				
	10a. DUTY PREFERENCE (Code) 1st 2d 3d		10b. DUTY PREFERENCE (Descriptive Title) (Abbreviate as required) 1st 2d 3d								
	11. REPORTING SENIOR a. SERVICE b. GRADE		c. IDENTIFICATION NO.		d. NAME AND DUTY ASSIGNMENT						
	12. SPECIAL CASE (Mark if applicable) <input type="checkbox"/> NOT OBSERVED <input type="checkbox"/> EXTENDED REPORT		13. PERFORMANCE 13a. REGULAR DUTIES 13b. ADDITIONAL DUTIES 13c. ADMINISTRATIVE DUTIES 13d. HANDLING OFFICERS (MARK NCO's "NO") 13e. HANDLING ENLISTED PERSONNEL 13f. TRAINING PERSONNEL 13g. TACTICAL HANDLING OF TROOPS 13h. ENDURANCE 13i. PERSONAL APPEARANCE 13j. MILITARY PRESENCE		14. ATTENTION TO DUTY 14a. COOPERATION 14b. INITIATIVE 14c. JUDGMENT 14d. PRESENCE OF MIND 14e. FORCE 14f. LEADERSHIP 14g. LOYALTY 14h. PERSONAL RELATIONS 14i. ECONOMY OF MANAGEMENT 14j. GROWTH POTENTIAL		15a. YOUR ESTIMATE OF THIS MARINE'S "GENERAL VALUE TO THE SERVICE" 15b. DISTRIBUTION OF MARKS FOR ALL MARINES OF THIS GRADE: 15c. FILL BOXES SO THAT THE SUM OF EACH COLUMN CORRESPONDS TO ITEM 15b. 16. CONSIDERING THE REQUIREMENTS OF SERVICE IN WAR, INDICATE YOUR ATTITUDE TOWARD HAVING THIS MARINE UNDER YOUR COMMAND. 17. HAS MARINE BEEN THE SUBJECT OF ANY OF THE FOLLOWING REPORTS? IF YES, ATTACH COPY OR REFERENCE IN SECTION C. 18. REPORT BASED ON OBSERVATION 19. QUALIFIED FOR PROMOTION 20. RECOMMENDATION FOR NEXT DUTY ASSIGNMENT 21. RESERVED FOR FUTURE USE				
	RECORD A CONCISE APPRAISAL OF THE PROFESSIONAL CHARACTER OF MARINE REPORTED ON. THIS SPACE MUST NOT BE LEFT BLANK.										

SECTION B. COMPLETED BY REPORTING SENIOR. USE BLACK INK AND FILL THE BOX TO INDICATE YOUR ESTIMATE OF THIS MARINE										

SECTION C. REPORTING SENIOR COMPLETE IN BLACK INK										

SECTION D. SIGNATURES	22. I CERTIFY the information in section A is correct to the best of my knowledge. (Signature of Marine reported on) (Date)					23. I CERTIFY that to the best of my knowledge and belief all entries made hereon are true and without prejudice or partiality. I HAVE (NOT) counseled this Marine concerning his overall performance of duty. (Signature of Reporting Senior) (Date)				
	24. (Check one when required) I HAVE SEEN THIS COMPLETED REPORT AND <input type="checkbox"/> I HAVE NO STATEMENT TO MAKE <input type="checkbox"/> I HAVE ATTACHED A STATEMENT. (Signature of Marine reported on) (Date)					25. REVIEWING OFFICER (Name, Grade, Duty Assignment) 25a. INITIALS 25b. DATE				

← STAPLE ADDITIONAL PAGES HERE

CHECK HERE IF ADDITIONAL PAGES ATTACHED →

FIGURE 3a. USMC Fitness Report (1610) (front)

← STAPLE ADDITIONAL PAGES HERE

SECTION A: COMPLETED BY MARINE REPORTED ON (USE OCR-TYPEWRITER ONLY, SEE REVERSE)	PROGRAM		1. ORGANIZATION a. MCC b. RUC		c. DESCRIPTIVE TITLE (Abbreviate as required)		
	2. MARINE REPORTED ON a. LAST NAME		b. FIRST NAME		c. M.I.	d. GRADE	e. IDENTIFICATION NO.
	3. OCCASION AND PERIOD COVERED a. OCC b. PERIOD: FROM-TO		c. TYPE		d. PERIODS OF NONAVAILABILITY (30 or more consecutive days)-EXPLAIN		
	4. FIRST REGULAR DUTY a. DESCRIPTIVE TITLE		b. MONTHS	c. T.O. NO.	d. LINE NO.	e. DuMOS	6. SPECIAL INFORMATION a. QUALIFICATION b. OTHER (Use only when directed)
	5. SECOND REGULAR DUTY a. DESCRIPTIVE TITLE		b. MONTHS	c. T.O. NO.	d. LINE NO.	e. DuMOS	7. RESERVED FOR FUTURE USE
	9. DEPENDENTS REQUIRING TRANSPORTATION a. NO. b. LOCATION c. ADDRESS		8. ORGANIZED RESERVE DRILLS ATTN. SKED.				
	10a. DUTY PREFERENCE (Code) 1st 2d 3d		10b. DUTY PREFERENCE (Descriptive Title) (Abbreviate as required) 1st 2d 3d				
	11. REPORTING SENIOR a. SERVICE b. GRADE		c. IDENTIFICATION NO.	d. NAME AND DUTY ASSIGNMENT			

GENERAL INSTRUCTIONS

1. This form is designed for use with optical character recognition (OCR) equipment. Do not fold or mutilate. Section A must be prepared by typewriter using a USASI Type-A standard character set for OCR. Typing must be double spaced, in correct alignment and in capital letters. When an OCR typewriter is not available, use the alternate section A above. Section B must be completed in black ink or black felt pen. Each completed block must be filled with an "X" that touches each corner of the block. No mark is to appear outside the boundaries of the block.

a. Abbreviations shown in marking boxes stand for the following:

- ☐ NO NOT OBSERVED (Insufficient opportunity to evaluate.)
- ☐ UN UNSATISFACTORY (Unacceptable performance.)
- ☐ BA BELOW AVERAGE (Below the generally accepted standard.)
- ☐ AV AVERAGE (Qualified to the generally accepted standard.)
- ☐ AA ABOVE AVERAGE (Highly qualified.)
- ☐ EX EXCELLENT (Qualified to degree seldom achieved by others of grade.)
- ☐ OS OUTSTANDING (One of the clearly superior individuals of his grade known to the reporting senior.)

b. Definitions of qualities listed in item 14:

- ENDURANCE (Physical and mental ability for carrying on under fatiguing conditions)
- PERSONAL APPEARANCE (The trait of habitually appearing neat, smart and well-groomed in uniform or civilian attire.)
- MILITARY PRESENCE (The quality of maintaining appropriate dignity and soldierly bearing)
- ATTENTION TO DUTY (Industry; the trait of working thoroughly and conscientiously.)
- COOPERATION (The faculty of working in harmony with others, military and civilian.)
- INITIATIVE (The trait of taking necessary or appropriate action on own responsibility)
- JUDGMENT (The ability to think clearly and arrive at logical conclusions.)
- PRESENCE OF MIND (The ability to think and act promptly and effectively in an unexpected emergency or under great strain)
- FORCE (The faculty of carrying out with energy and resolution that which is believed to be reasonable, right or duty.)
- LEADERSHIP (The capacity to direct, control and influence others and still maintain high morale.)
- LOYALTY (The quality of rendering faithful and willing service and unswerving allegiance under any and all circumstances.)
- PERSONAL RELATIONS (Faculty for establishing and maintaining cordial relations with military and civilian associates.)
- ECONOMY IN MANAGEMENT (Effective utilization of men, money and materials.)
- GROWTH POTENTIAL (The capacity for professional development.)

2. Supplementary pages may be attached as necessary to provide additional information including amplification of section C. Such pages must include the name and identification number of the Marine reported on, the period and occasion of the report, the item number or section being amplified, and the signature of the reporting senior. All such pages must be attached by staple to the space provided.

FIGURE 3b. USMC Fitness Report (1610) (back)

While the officer records are available to the monitors, they are neither stored nor maintained by the assignment section. A separate unit handles all filing and upkeeping of the records, and has sufficient storage space for these considerably bulky items. The case files are normally provided to the monitors on a one-day notice, but emergency access on short notice is also made.

A means of providing the monitor a shortened version of the officer record does exist. This allows him to begin the assignment selection process utilizing certain elements of data to classify and eliminate candidates for assignment. The eliminated candidates usually are not appropriate for the assignment based upon their availability or the job criterion. The full case is then necessary only for the final decision where amplifying information is pertinent. The assignment review process would become extremely unwieldy if the case files were attached to each assignment, so the shortened form also provides a labor-saving means for the review process to evaluate an assignment. Again, where necessary to clarify a selection, the full case can be used.

This shortened form is a computer-based document that is provided to the separate monitor offices. It is currently presented on a microfiche format, but at the time the experiment described in later sections was done, the material was presented as a hard copy computer printout. Accordingly, both formats will be discussed. The early, paper version was entitled the Personnel History Card 1070 (NAVMC HQ 472) and commonly called the "blue card" or "ticket." It consisted of two sections, a cover sheet containing biographical and historical data pertaining to the individual, illustrated in Figure 4, and one or more Officer Fitness Report Briefs (NAVMC HQ 477) consisting of performance data extracted from the fitness reports. This shortened form of the cumulative fitness

LANYARD				COTTON D				12 34 56				123 45 67 89				MAJ				0802			
NAME								SERVICE NO				SSAN				GRADE				PRIMARY MOS			

COMP/CLASS		CONTRACT/AGREEMENT		DUTY LIMITATION		SECURITY CLEARANCE		PULHES		ADD MOS	
USMC		O		NONE		BI SEP 60 FTS				0803/0840	

DOB	HOR	SEX	RACE	RELIGION	CIT	NAT	IP-1	IP-2	FP	SP	HFP	SC	PAP	CCS	TCD	DSC	BMOS
1 APR 37	AK 32	M	C	METH	B	US	O	O	O	O		Z	Z	O	8	1	9911

ORIG ENT AF	FEED	AF ACDU BD	AC NAV BD	ACC 1st COM	DOR 1st COM	DOR 1st LDO	DSG PILOT	CUR ACDU BD	SD
28 JUN 56	4 JUN 58	4 JUN 58	0	4 JUN 58	4 JUN 58	0	0	4 JUN 58	58

PRES GRADE	SPECIAL RANK	DOR	SEL GR/PO	SEL GR STATUS	PERM GR	DOR PERM GR	LINEAL CONTR
MAJ	STAT	1 JUL 67			MAJ	1 JUL 67	

CT/GCT	AFQT/AQT	IN	AE	EL	GM	NM	CL	GT	ETST	VE/GCT	AR/RV	PA/AC	CI/AR	MA/PA
136-2										136	152	139	141	129

CAT	MSG	HRS LAST 5 YRS	MOD HRS LAST YR	MOD HRS LAST YR	MOD HRS LAST YR	MOD HRS LAST YR	MOD HRS LAST YR
		0	0	0	0	0	0

LANGUAGE		I SCORE II		S RATING R		REMARKS		ADD	LAT
SPANISH		39	39	S-2	R-2	LANGUAGE TEST			30

CIVILIAN EDUCATION	
COLLEGE GRADUATE	BASIC DEGREE
MILITARY SCIENCE	

DEPN	YOB	LOC
1 WIFE	40	NC 13
2 SON	62	NC 13
3 DTR	64	NC 13
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		

HARRY	BAQ
	E

SERVICE SCHOOLS		YR
1 BASIC SCHOOL		59
2 FLD ARLY OFF FAM		61
3 MARCORPS AMPH WARF		68
4 ARMED FORCES STF COL		73
5		
6		
7		
8		

DECORATIONS	
BRONZE STAR V	

FULL DUTY STATUS

DATE OF REPORT
1 MAR 73

HOR - 12345

PERSONNEL HISTORY CARD (1070) NAME: LANYARD, COTTON D

FIGURE 4. Personnel History Card 1070

report is illustrated in Figure 5. The data include the command, type unit, unit level, job description, grade, duration, and reason for the particular fitness report, and three values or "performance indicators" determined to be representative of the overall content of the fitness report.¹

These three factors and their corresponding source on the original fitness report are shown as Table I. These data were among those extracted from the fitness reports by keypunch operators, and is maintained on tape records in the Automated Data Processing center within the Headquarters.

Performance Indicator	Old Fitness Report (1611) Item	New Fitness Report (1610) Item
DUTY	16.a	13.a
VALUE	19	15.a
DESIR.	18	16

TABLE I. Sources of the Performance Indicators

The conversion to the optical scanner fitness report made it possible for all scalar ratings to be easily recorded onto the tape records. The changeover to the microfiche version of the shortened form of record presently involves a viewer/printer output containing about the same

¹ The basis for selecting these three variables as the primary indicators is not known; however, they seem to be the most encompassing rating-scale items relative to performance. No statistical data are known that validate the suitability of these items as being representative.

LANYARD		COTTON D.		MAJOR		123456		DECORATIONS															
NAME		GRADE		SERV. NO.		MH	NC	DC	DM	SS	LM	DF	HM	BS	AA	JC	CP	NC	SC	PH	GL	SL	FN
STUDENT BASIC SC MCB QUANTICO				STUD		01		5808			11		AC		AA					A	AA		GT
BASIC SCH																							
2D MARINE DIVISION				ASST EXEC		01		5909			04		CH		O				O				PD
ARTY BN -BTRY				OFF																			
2D MARINE DIVISION				FIRE DIR		02		6001			06		SA		O				O				PD
ARTY BN -BTRY				OFF																			
2D MARINE DIVISION				FIRE DIR		02		6007			04		CC		O				O				PD
ARTY BN -BTRY				OFF																			
2D MARINE DIVISION				FIRE DIR		02		6011			01		SA		E				E	O			PD
ARTY BN -BTRY				OFF																			
2D MARINE DIVISION				TAD		02		6101			03		CH		NO				NO				NO
ARTY BN -BTRY																							
2D MARINE DIVISION				COMD OFF		02		6104			02		DE		E				E	O			PD
ARTY BN -BTRY																							
USA ARTI & MISS SCH FT SILL OKLA				INST		02		6107			06		SA		E				E				PD
MISL SCH -STF																							
USA ARTI & MISS SCH FT SILL OKLA				INST		02		6201			06		SA		E				E				PD
MISL SCH -STF																							
USA ARTI & MISS SCH FT SILL OKLA				INST		02		6207			06		SA		E				E				PD
MISL SCH -STF																							
USA ARTI & MISS SCH FT SILL OKLA				INST		02		6301			06		SA		E				E	O			PD
MISL SCH -STF																							
USA ARTI & MISS SCH FT SILL OKLA				INST		02		6307			06		SA		E				E				PD
MISL SCH -STF																							
USA ARTI & MISS SCH FT SILL OKLA				INST		02		6401			06		SA		E				O				PD
MISL SCH -STF																							
USA ARTI & MISS SCH FT SILL OKLA				INST		02		6407			01		DE		O				O				PD
MISL SCH -STF																							
MCB CAMP PENDLETON				TRAN		02		6408			02		DE		NO				NO				NO
STAG -BN																							
THIRD MARINE DIVISION				COMD OFF		03		6410			02		SA		E				E				PD
ARTY BN -BTRY																							
THIRD MARINE DIVISION				COMD OFF		03		6501			02		CH		E				E				PD
ARTY BN -BTRY																							
THIRD MARINE DIVISION				COMD OFF		03		6503			03		SA		E				E	O			PD
ARTY BN -BTRY																							
THIRD MARINE DIVISION				COMD OFF		03		6507			03		DE		E				E	O			PD
ARTY BN -BTRY																							
MB VALLEJO CALIF				GUARD OFF		03		6511			02		SA		AA				E				GT
GUARD -CO																							
MB VALLEJO CALIF				GUARD OFF		03		6601			06		SA		E				E	O			PD
GUARD -CO																							
MB VALLEJO CALIF				GUARD OFF		03		6607			06		SA		E				E	O			PD
GUARD -CO																							
MB VALLEJO CALIF				GUARD OFF		03		6701			04		CH		E				E	O			PD
GUARD -CO																							
MB VALLEJO CALIF				GUARD OFF		03		6705			02		DE		E				E	O			PD
GUARD -CO																							
STUD USMC PHIBWARSCOL MCS QUANTICO				STUD		03		6707			06		AC		NO				NO				NO
AMPH WAR -SCH																							
COMMAND WITH WHICH JOB PERFORMED				JOB DESCRIPTION		GRADE		BEGIN DT		NO.		TYPE		DUTY		VALUE		DESIR.					
TYPE UNIT . UNIT LEVEL								YR MO		MO		RPT											
PREFERENCE FOR DUTY				PAGE OF		1. JOINT STAFF - EUROPE																	
						DT RPT		20 OCT 68		RECOMMENDATION													
1. HQ 12TH MCD SAN FRANCISCO																							
2. MCB CAMP PENDLETON CALIF																							
						PRIM MOS																	
						0802																	

OFFICER FITNESS REPORT BRIEF - NAVMC HQ 477 (REV. 7-64)

FIGURE 5. Officer Fitness Report Brief

biographical data as was shown in Figure 4. The cumulative fitness report record, while having the computer capability to include many more data, is still essentially the same as that provided on the "blue card," particularly in that the same three performance indicators are still the only ones provided the monitors. Figure 6 shows the microfiche presentation of the cumulative fitness report data.

To further aid the monitor, the data processing system provides scheduled printouts that provide biographical groupings of information, for example, language lists, educational lists, Military Occupational Specialty lists, alphabetical rosters, rank rosters, location lists, and the like. Essentially, any of the data elements presented on the Personnel History Card of Figure 4 can be compiled into special listings.

D. METHODS AND PREDICTOR VARIABLES

1. The Search Process

Upon receipt or identification of a requirement that must be filled, the monitor will begin a search process to identify possible candidates from whom to make a final selection. This process is not standardized, and will vary depending on the monitor or the type of assignment to be made. One method is to develop a listing of officers who in the memory and mental estimate of the monitor might be worth considering. This search method may uncover a suitable assignment selectee, but is vulnerable to overlooking other officers equally competent or perhaps better. Favoritism or a "halo" effect may make an unconscious appearance in this search method. Another means is to determine all officers of appropriate rank who will be available consistent with the timing of the assignment to be made. A third technique is to consult one of the special listings if certain criteria are

LANYARD	COTTON	D	MAJOR	123	45	67	89/0802	
NEW ORLEANS, LOUISIANA INFANTRY BN	-STAFF		ASST	INSPECT INSTRUCT	03	5803	SA AA	EX-AA GT
NEW ORLEANS, LOUISIANA INFANTRY BN	-STAFF		ASST	INSPECT INSTRUCT	03	5809	SA AA	EX GT
NEW ORLEANS, LOUISIANA INFANTRY BN	-STAFF		ASST	INSPECT INSTRUCT	03	5903	TR EX	EX PD
1ST MARINE DIVISION INFANTRY BN	-STAFF		STAFF 2		03	5908	SA EX	EX PD
1ST MARINE DIVISION INFANTRY BN	-COMPANY		COMMAND	OFFICER	03	6003	CH AA	EX-AA PD
3RD MARINE DIVISION INFANTRY BN	-COMPANY		COMMAND	OFFICER	03	6008	SA EX	EX GT
3RD MARINE DIVISION DIVISION HQ	-DIVISION		SENIOR	AERIAL OBSERVER	03	6104	SA NO	NO NO
1ST MARINE AIR WING OBSERVER	-SQUADRON		SENIOR	AIR OBSERVER	03	6104	CO EX	OS/EX PD
3RD MARINE DIVISION ADVISORY GROUP	-STAFF		TAD		03	6106	TR NO	NO NO
LAOS ADVISORY GROUP	-STAFF		CHIEF	AIR SECTION	03	6106	CO EX	OS PD
LAOS ADVISORY GROUP	-STAFF		CHIEF	AIR SECTION	03	6108	CO OS	OS/EX PD
MCB CAMP PENDLETON CALIF SERVICE BN	-COMPANY		COMMAND	OFFICER	03	6203	CH EX	EX PD
MCB CAMP PENDLETON CALIF SERVICE BN	-COMPANY		COMMAND	OFFICER	03	6207	SA OS	OS/EX PD

FIGURE 6. Microfiche Officer Fitness Report Printout

involved, for example a list of all majors speaking Portuguese or a list of all captains who have a master's degree in financial accounting. By whatever means, efficient or inefficient, a list of possible candidates for a billet is evolved.

A weeding process then begins wherein particular job criteria will quickly eliminate certain people on a basis of special skills or availability at a certain time. Hasty record appraisal may be involved in this early weeding process. Applying easily evaluated factors will reduce the list for most assignments to manageable proportions. In the case of selections for certain professional schools, however, the list may still be quite lengthy.

The final predictor variable to be applied is normally an overall record appraisal made from the short-form record. This generally serves as the "clincher" in most assignment decisions, and therefore, is of considerable importance. Should the assignment require further evaluation, the full case is drawn and used to make an ultimate decision on the matter. Higher reviews of the decision will normally continue to be based upon the short-form record.

2. Record Appraisal Techniques

a. Subjective Analysis

With the list of possible candidates somewhat narrowed down, the monitor can now study the short-form records of each individual, establishing a mental reference point that allows some sort of "better than-worse than" evaluation. The success of this method depends on the number of individuals being evaluated, and the degree of difference between the records. A choice between two people, one with an obvious "poor" record and one with an obvious "good" record is easy to make. A selection from among six individuals with similar appearing records is more

difficult to make, and in the case of a larger list, such as a possible school-attendees roster, the choice becomes even more tenuous.

As may be expected, where most assignments narrow down to a selection from among five or fewer candidates, this subjective method is commonly used. Despite the frequency of its use, it is subject to several points of criticism. It is a time-consuming method, as the monitor must scan each short-form record once, establish his mental reference point, then re-read the indicators and make the "better than-worse than" classification. In itself, this evaluation may vary from group to group, based upon the random characteristics of the records, that is, "better than-worse than" is apt to be a sliding scale. As a result of this, attempts to verbalize or record the monitors appraisal are extremely imprecise, and end up with the monitor having to expound at great length to establish his appraisal to any other person.

Individual monitors may use a notation system of some sort that has meaning to them, for example, an arrow method where \uparrow means a "great" record and \downarrow means a "poor" record, with varying angles, \nearrow or \searrow , meaning intermediate different degrees of performance. Utilization of such shorthand codes by any but the monitor who wrote it becomes extremely difficult.

b. Objective Analysis

(1) The Desirability Method. One technique developed to provide a means of quantification to the record-appraisal process involves the use of the performance indicator termed DESIR. This is recorded on the computer tapes from the sources indicated in Table I and is expressed on the short-form record in terms as follows: PD (particularly desire). BG (be glad), WT (be willing), PN (prefer not), and NO (not observed). All these are in response to the statement, "Considering the requirements

of service in war, indicate your attitude toward having this marine under your command." Utilizing this factor is usually just a matter of accumulating and classifying all markings displayed in the DESIR. column, giving an individual's record appraisal in a format similar to: 1-WT, 3-GT, 14-PD. A comparison can then be made between individuals on a pure numbers basis, with the individual possessing the least number of markings below PD having the best record.

While this method is a means of quantifying the record appraisal, its value as a predictor is limited. It does accomplish the highlighting of problem fitness reports, as PN and WT markings are normally associated with low overall evaluations. On the other hand, for good fitness reports, the desirability marking has a poor discriminatory capability, as a wide range of overall fitness report markings can be associated with BG or PD markings. Use of this factor also considers only one of the three performance indicators objectively, the others probably being analyzed separately and subjectively. Lastly, it is still a method that requires excessive time and handwriting effort on the part of the monitor.

The technique and comments for the DESIR. method are applicable to the other two performance indicators, which have occasionally been utilized as separate predictors in a similar manner.

(2) The "Truth-teller" Method. This is a system that is not based upon the short-form record, but upon the individual fitness reports in the selection portion of the case file. In this method, an accumulation of relative "value to the service" rankings is made using the distribution-of-markings item (19.b on the 1611 fitness report, 15.b on the optical scanner 1610 fitness report). A total record count is made of how many officers were graded below, how many were graded with,

and how many were graded above the officer being rated. The results of this can then be expressed either as a data summation in a form similar to 37-Below, 14-With, 8-Above, or expressed as a percentile.

This method has gained popularity as one of many indicators in cases where board action involving a large group of officers is involved, and where counseling-type record appraisals for individuals are made, as in Career Plans Branch. It is probably used in those situations more frequently than in assignment selection. The new fitness report will allow this distribution data to be entered on the computer tapes, but at present, the distribution markings for the period 1961 to 1972 are found only on the fitness report originals in the case files. The work associated with extracting and accumulating these data is an immediate drawback to its use on a frequent basis.

The ability to compare an officer with contemporaries has merit, but the "truth teller" can be thrown off by an individual serving in duties where he is one of a kind and compared with no one else, or where he is rated by a reporting senior that tends to block everyone in only one or two categories. Again, only one aspect of an officer's record is presented by the "truth teller"; however, there is a strong face validity to the use of this method as a predictor variable.

E. STATEMENT OF THE PROBLEM

The assignment process has continually attempted to utilize the most equitable, expedient, and credible method available to it. The methods of record appraisal mentioned above are efforts to meet this goal; yet, the systems are still in need of improvement in that too much of the monitor's time is consumed in making the record appraisals, the equitability is diverse from office to office depending on the system used, and

the credibility is difficult to uphold when subjective judgments are made that are incapable of being quantitatively expressed. The methods above have evolved in a personnel area where the idea of equating people to a number is unpalatable; yet the techniques have grown into various levels of scaling systems, wherein numbers make their appearance as a matter of course. Unfortunately, the values expressed are less than what they could be as predictor variables, representing only a single portion of the available data as being indicative of a record's general tendency. The problem is that a requirement still exists for a record-appraisal predictor variable that meets the originally stated characteristics of reliability, validity, objectivity, and quantitateness, and provides an expedient, equitable, and credible management tool for the monitor, utilizing the data available within the record-keeping system.

III. THE PERFORMANCE INDEX AS A PREDICTOR VARIABLE

A. OVERVIEW

The performance index is a means of expressing an individual's past performance numerically, and is based upon the three performance indicators printed on the short-form records from data stored in the automated data-processing system. The final value reflects a weighting factor that compensates for the time value of markings.

The technique is not an innovation within the Headquarters Marine Corps Personnel Department, being a method that has been used in the past for certain board-action selections. Examination of a mimeographed work sheet left over from a warrant-officer screening board indicated that the computations were perhaps appropriate to the assignment process, and could be developed entirely separate from promotion-board actions.

B. A TRIAL RUN

Accordingly, in the fall of 1969, at least two monitors utilized a work sheet similar to the warrant-officer screening-board format to assist them in making selections from a small group of officers being considered for assignment to high-level schools. The procedure was done entirely by hand and was time consuming; however, the discriminatory capability of the performance index could be seen, and there appeared to be a face value relationship between the index and the overall record, providing a means of selecting for attendance and predicting the ability to finish the school and provide continued service beyond the next promotion level.

C. THE EXPERIMENT

This small sampling encouraged an even larger experiment. During the fall of 1970, two groups were selected and their short-form records were converted into performance-index listings. The first group consisted of 318 majors in the Marine Corps, comprising the entire artillery occupational field for that rank. The second group was composed of 261 Marine Corps captains, also the entire number of artillery officers in that rank.²

The data were again converted by hand utilizing officers awaiting commencement of a school in the Washington, D. C., area. The three performance indicators were each converted to a numerical score, combined, weighted by the months of grading, then averaged to determine the overall performance index. This procedure is expressed by the formula:

$$PI = \frac{\sum (D + V + DE) M}{\sum M}$$

wherein

PI = Performance Index

D = numerical representation of Duty markings on the brief

V = numerical representation of Value markings on the brief

DE = numerical representation of Desir. markings on the brief

M = number of months the fitness report covers, shown on the brief

An example of the computation of a performance index is shown in Appendix A. The values for both groups were then converted to a computer

² At that time, the monitor offices were organized by occupational field, and all artillerymen came under the cognizance of the Artillery-Ordnance monitor.

card deck, and printouts were made arranging officers alphabetically and in high-to-low performance index sequence. These latter cumulative data are displayed in Appendix B.

The performance indexes thus established were used as the record-appraisal predictor variable for artillery assignments until July, 1971, for both majors (one year's slate) and captains, and in part for artillery captain assignments from that time to the present.

IV. RESEARCH TECHNIQUES AND RESULTS

A. IDEAL PROCEDURE

In a discussion of the steps to be followed in conducting selection research, Bechtoldt (1951) recommends five tasks that are involved. These are:

1. The establishment of the criterion categories of "success," which involves the definition of the behavior to be predicted and the development of the procedures for the classification of performance.
2. The selection of the attributes on which prediction is to be based, and the establishment of the several predictor categories for each of the attributes. These prediction attributes are those that are expected to have significant relations with the criterion attributes.
3. The determination of the relations between the criterion variables and the several predictor attributes. These empirical relations are then used to predict a criterion for each individual.
4. The verification of the relations determined on the basis of the original sample by the application of the classification procedures to a new sample of the population.
5. The application of the selection procedure in the routine situation for which it was developed, provided the stability of the prediction in the cross-validation step has been sustained.

B. ACTUAL PROCEDURE

In order to follow these steps in a manner which permits some objective evaluation of the experiment, it was necessary to determine a criterion variable that was indicative of "success." Due to the wide

variety of assignments made by the monitor, the criterion variables could be as numerous as the types of duty. Also, the duration of assignments (up to three years) would have caused a lengthy wait before final results of each assignment could be tabulated. Accordingly, a global criterion variable was selected that is independent of particular assignments, this variable being selection for promotion to the next higher rank. In essence, this becomes the "ultimate" criterion referred to by Bechtoldt, as it is indicative of success in all assignments made in the lower grade.

The predictor variables selected, as pointed out earlier, were the performance indicators on the Officer Fitness Report Brief which were mathematically combined into one variable, the performance index. The empirical relationship between the predictor and criterion variables was then established utilizing the results of the Fiscal Year 1972 selection boards, shown in Appendix C, which promoted or passed over a number of the majors to the grade of lieutenant colonel, and acted similarly for the captains going to the grade of major. A statistical evaluation of the FY 1972 selection distribution was then made utilizing the rank-sum test. The computations involved in this test are illustrated in Appendix D.

Lastly, a cross-validation of the results provided by the FY 1972 selection board was made utilizing the results of the FY 1973 selection boards, also contained in Appendix C. The rank-sum test was again applied to this distribution for statistical analysis.

C. RESULTS

The idea in developing a performance index was to come up with a means of record appraisal that was based upon an objective means of selectivity, as opposed to the somewhat random selectivity encountered

in the commonly used subjective-analysis appraisal technique (paragraph II D 2.a). If the performance index were to be representative of an overall record and capable of serving as a predictor of "success" on the job, then the high-to-low distribution of performance-index markings must indicate high-to-low chances of "success" based upon evaluation and not random choice.

The rank-sum test is applied to the selection-board results, wherein the total selection zone was placed in performance-index sequence, then ranked. The sum of the ranks of the smaller sub-group (non-selectees) was then evaluated to determine the probability that such a sum could occur by chance alone. For both the validation group (FY 1972) and the cross-validation group (FY 1973), the probability of ranking the individuals in each group at random in the sequence indicated by the performance index was found to be extremely small. Values are presented in Table II.

FY	Grade	Non-selectee rank-sum	Z Score	Probability of Random ranking
72	Major	260.5	-4.87	Beyond .00001
72	Captain	209.0	-5.71	Beyond .00001
73	Major	110.0	-2.90	.0019
73	Captain	100.5	-3.18	Beyond .0007

Table II. Results of Rank-sum Test

Essentially, the performance-index method of record appraisal utilizing only the three performance indicators provides a discriminatory means of record evaluations reasonably comparable to the actual results of a selection board utilizing the entire contents of a fitness report plus the additional elements found in the selection file.

This statement is in reference to the performance-index technique as used in a group sampling such as the selection-board results, and is not meant to be applicable to any particular performance index by itself. Examination of the selection-board results presented in Appendix C will aid in illustrating this point. While the data indicate a general tendency for high-performance indexes to be promoted and low-performance indexes to be passed over, there are notable exceptions, particularly in the low ends for the captain FY 1972 data and the major FY 1973 data. There are also numerous instances in the middle ground of each zone wherein equivalent performance indexes have resulted in selection for some and passovers for others. Obviously, variables other than the three performance indicators comprising the index have been considered by the selection board. In other words, the performance index alone, applied to a single individual only, cannot be accepted as the sole predictor of success.

Utilization of the performance index during the experimental period demonstrated several advantages. It was a great time saver in that it reduced the record evaluation process, and additionally, reduced the search process time when the original requirement was for a certain caliber of performance. Additional benefits were found in counseling field officers who were visiting and inquiring as to the quality of their record compared to their contemporaries. Discussion in terms of

the performance index provided a more easily understood comparison for the individual.

A totally unexpected capability was displayed when a request was made by higher authority to provide the location of the top-three 10% groupings of all officers in the grade of major. Initial identification of who these 105 artillery officers might be was considerably simplified using the performance-index lists.

No procedural difficulties were encountered using the performance index as the initial basis for overall record appraisal.

V. SUMMARY, CONCLUSIONS, RECOMMENDATIONS, AND SUGGESTIONS

A. SUMMARY

The assignment of officers to varying duties during a military career is a process of selection. In an effort to maximize the benefit to the service and individual of this selection process, several predictor variables relative to the assignment are utilized in making the selection. One of the most important predictor variables is an appraisal of the record of past performance. There are currently in use two general ways of evaluating the performance records, these methods being subjective techniques and objective techniques. The latter includes methods that quantify a single aspect of the performance record into some form of comparison rating.

An experiment was conducted utilizing the objective technique to establish a means of record appraisal that takes into consideration all three "performance indicators" available on the Officer Fitness Report Brief. This performance index is a single value representing the cumulative markings of these "performance indicators," weighted by the time span over which the markings were received. The records of all Marine Corps artillery majors and captains were transformed to this performance index in the fall of 1970, and the resulting indexes were used as the record-appraisal predictor variable, one of many variables considered in the assignment selection process.

The utility of the performance index as a predictor of job success was measured by analyzing the index in comparison to an ultimate criterion variable, selection for promotion to the next higher grade. Statistical comparison utilizing the rank-sum test indicated the probability of

ranking a sample group at random in the sequence established by the performance index is less than .01%.

B. CONCLUSIONS

The performance index method of record appraisal provides the assignment officer with an effective indicator of overall prior performance that is useful as a predictor variable relative to "success" in an impending assignment. It cannot be established as the sole predictor variable in the assignment selection process, and it is not intended that it be the only means of record appraisal utilized by the monitor in his decision-making steps.

The performance index is designed to provide the monitor with a management tool that is:

1. Expedient, in that the basic record-evaluation process is rapidly accomplished, shortening the search and weeding out unnecessary efforts in the selection process.
2. Equitable, in that it provides the monitor with quantitative evaluations that are consistent from individual to individual, and that it provides the review process with evaluations that are consistent from monitor to monitor.
3. Credible, in that the performance indicators are all represented and weighted by time, rather than being accumulated on a pure frequency basis.

In its present format, the performance index is subject to certain shortcomings. First, it is only a partial representation of an entire performance record, and does not have the capability of expressing other data with high face validity, notably the "truth-teller" and the subjective comments on the fitness report. Secondly, the cumulative construction

of the performance index does not reflect trends in career performance, i. e., a low index could be indicative of very poor early fitness reports with very good later fitness reports or vice versa, or indicative of consistent mediocre performance. Thirdly, it is more subject to improper interpretation and use by personnel other than the monitors, for example, those who would mistakenly believe it is "the" promotion indicator, or those who would attempt to obtain indexes on officers within their command for internal use in evaluations or billet assignments.

As a management tool, the performance index also provides the Officer Assignment section with an internal control device, in that a means of comparing the distribution of officers by overall record or "quality" among various commands, two different divisions for example, is available. Similarly, the type assignments given to the various levels of performance index can be determined. In any lengthy selection process, such as a high-level school, or perhaps even a promotion board, a comparison of selectees and non-selectees with performance indexes will indicate individuals that have been overlooked or that require a second evaluation.

C.. RECOMMENDATIONS

It is recommended that the performance index be considered as a step in the direction of more efficient utilization of the information available to monitors in the assignment-selection process, and that the performance index for each officer be provided by the automated data-processing section on at least a semi-annual basis.³

³ A program which provides an index similar to the performance index is already available, but not used, in the Plans and Analysis Section of the Assignment and Classification Branch. This program displays but does not include the DESIR indicator in the index. It does have the added advantage of being able to show performance indexes by grade, thereby displaying any trend patterns.

The performance index should be treated as privileged information and utilized only by those personnel with an established need for the information. It should not be made available to members of a promotion or school-selection board, with the possible exception that it could be made available to the senior member of the board as an internal control device after selections have been made.

D. SUGGESTIONS

The capability exists within the computerized performance data to conduct analytical studies for information that will further assist the assignment-selection process. By reconstructing the performance index to any point in an officer's record, it can be evaluated as a predictor variable by then relating it to the markings received in the assignment immediately following the point selected.

Job criteria can be established by comparing the markings of all officers on any given type of duty, for example, inspector-instructor, with the performance index existent at the time the officers were assigned to the duty.

The performance index itself can be factor-analyzed to determine if all three performance indicators are necessary in its composition, or if one or two of the indicators significantly accomplish the prediction function.

As it is presented, the performance index represents only a temporal step in the effort to more efficiently combine the data-utilization process and individual-judgment efforts required in the assignment-selection process.

APPENDIX A: COMPUTATION OF A PERFORMANCE INDEX

The hand computation of the performance index is a mathematically simple but tedious process.

The three performance indicators, Duty, Value, and Desirability contained on the Officer Fitness Report Brief (Figure 5) are converted to numerical equivalents as indicated below:

DUTY	VALUE	DESIRABILITY	EQUIVALENT
0	0	PD	6
-	E:0	-	5.5
E	E	-	5
-	AA:E	-	4.5
AA	AA	GT	4
-	A:AA	-	3.5
A	A	-	3
-	BA:A	-	2.5
BA	BA	WT	2
UN	UN	PN	1
NO	NO	NO	0

All markings other than "not observed" (NO) are then tabulated on a work sheet and manipulated in accordance with the formula presented in section III.C. The computation of the data contained in Figure 5

is hereby illustrated: (This would be only one of many pages.)

DUTY	+	VALUE	+	DESIR	=	SUM	X	MONTHS	=	TOTAL
4		3.5		4		11.5		11		126.5
6		6		6		18		4		72
6		6		6		18		6		108
6		6		6		18		4		72
5		5.5		6		16.5		1		16.5
5		5.5		6		16.5		2		33
5		5		6		16		6		96
5		5		6		16		6		96
5		5		6		16		6		96
5		5.5		6		16.5		6		99
5		5		6		16		6		96
5		6		6		17		6		102
6		6		6		18		1		18
5		5		6		16		2		32
5		5		6		16		2		32
5		5.5		6		16.5		3		49.5
5		5.5		6		16.5		3		49.5
4		5		4		13		2		26
5		5.5		6		16.5		6		99
5		5.5		6		16.5		6		99
5		5.5		6		16.5		4		66
5		5.5		6		16.5		2		33
TOTAL =						89		1517		

$$\text{PERFORMANCE INDEX} = \frac{1517}{89} = 17.04$$

APPENDIX B: CUMULATIVE PERFORMANCE INDEXES

Following are the major's performance indexes in high-to-low order:

17.23	15.03	14.32	13.80	13.40	12.94	12.04
16.57	14.99	14.29	13.80	13.40	12.93	12.02
16.54	14.98	14.28	13.79	13.39	12.92	11.97
16.42	14.98	14.26	13.76	13.39	12.91	11.83
16.11	14.95	14.26	13.76	13.38	12.90	11.82
16.08	14.94	14.24	13.76	13.36	12.89	11.81
15.97	14.93	14.23	13.76	13.34	12.89	11.75
15.92	14.90	14.22	13.76	13.33	12.89	11.74
15.91	14.90	14.22	13.75	13.33	12.85	11.62
15.90	14.90	14.15	13.75	13.32	12.80	11.62
15.90	14.88	14.15	13.74	13.31	12.79	11.58
15.89	14.88	14.13	13.74	13.31	12.78	11.47
15.89	14.83	14.13	13.73	13.31	12.78	11.29
15.86	14.78	14.13	13.73	13.29	12.77	11.25
15.83	14.77	14.12	13.70	13.29	12.77	11.07
15.81	14.75	14.11	13.70	13.28	12.74	10.96
15.65	14.75	14.10	13.69	13.28	12.64	10.93
15.63	14.75	14.09	13.68	13.28	12.61	10.90
15.52	14.74	14.08	13.66	13.27	12.60	10.27
15.48	14.74	14.08	13.63	13.24	12.59	
15.46	14.74	14.07	13.62	13.23	12.58	
15.45	14.73	14.04	13.62	13.23	12.57	
15.44	14.71	14.02	13.60	13.22	12.57	
15.42	14.67	13.98	13.60	13.22	12.56	
15.41	14.66	13.98	13.60	13.21	12.53	
15.41	14.64	13.97	13.59	13.21	12.52	
15.40	14.62	13.97	13.58	13.19	12.52	
15.38	14.62	13.96	13.58	13.19	12.49	
15.34	14.58	13.96	13.56	13.18	12.42	
15.33	14.57	13.95	13.55	13.18	12.41	
15.31	14.53	13.94	13.55	13.18	12.37	
15.29	14.52	13.94	13.55	13.17	12.34	
15.28	14.50	13.94	13.54	13.15	12.30	
15.26	14.50	13.92	13.53	13.14	12.30	
15.20	14.49	13.92	13.52	13.10	12.28	
15.19	14.49	13.91	13.50	13.09	12.27	
15.17	14.46	13.91	13.49	13.08	12.26	
15.16	14.45	13.90	13.49	13.08	12.26	
15.13	14.45	13.89	13.48	13.07	12.26	
15.12	14.44	13.89	13.47	13.06	12.23	
15.10	14.44	13.88	13.47	13.04	12.18	
15.09	14.42	13.87	13.46	13.04	12.17	
15.09	14.42	13.86	13.45	13.04	12.17	
15.08	14.42	13.86	13.45	13.04	12.15	
15.08	14.42	13.85	13.45	13.02	12.11	
15.06	14.38	13.84	13.44	13.01	12.10	
15.05	14.36	13.84	13.43	13.01	12.08	
15.03	14.35	13.83	13.42	13.00	12.07	
15.03	14.32	13.83	13.41	12.99	12.07	
15.03	14.32	13.82	13.41	12.94	12.06	

Following are the captain's performance indexes in high-to-low order:

16.62	15.02	14.26	13.40	12.62	10.55
16.61	15.02	14.26	13.39	12.55	10.19
16.59	15.01	14.24	13.36	12.48	10.16
16.56	14.99	14.23	13.36	12.47	10.13
16.51	14.99	14.21	13.35	12.46	10.03
16.51	14.99	14.21	13.34	12.45	9.87
16.51	14.96	14.17	13.34	12.44	9.77
16.50	14.96	14.16	13.34	12.41	9.54
16.41	14.94	14.15	13.34	12.39	9.26
16.36	14.93	14.14	13.32	12.37	9.00
16.29	14.93	14.13	13.29	12.32	8.56
16.28	14.90	14.12	13.29	12.31	
16.26	14.90	14.12	13.27	12.29	
16.26	14.89	14.11	13.26	12.23	
16.19	14.80	14.09	13.24	12.19	
16.10	14.79	14.09	13.23	12.15	
16.09	14.79	14.08	13.21	12.13	
16.05	14.79	14.05	13.18	12.13	
16.02	14.77	14.00	13.14	12.09	
16.00	14.77	13.98	13.14	12.07	
15.82	14.76	13.97	13.13	12.05	
15.78	14.75	13.97	13.12	11.96	
15.78	14.73	13.96	13.12	11.95	
15.76	14.73	13.92	13.12	11.92	
15.76	14.73	13.89	13.08	11.92	
15.73	14.72	13.89	13.08	11.92	
15.73	14.70	13.87	13.01	11.86	
15.72	14.69	13.86	13.00	11.85	
15.70	14.68	13.86	12.99	11.84	
15.68	14.65	13.84	12.98	11.83	
15.63	14.64	13.84	12.98	11.77	
15.59	14.64	13.83	12.95	11.76	
15.56	14.63	13.81	12.94	11.62	
15.54	14.62	13.80	12.93	11.62	
15.54	14.61	13.79	12.93	11.60	
15.49	14.58	13.76	12.92	11.60	
15.41	14.55	13.74	12.89	11.56	
15.39	14.53	13.74	12.89	11.33	
15.37	14.52	13.70	12.87	11.29	
15.34	14.50	13.69	12.87	11.18	
15.33	14.47	13.68	12.86	11.15	
15.26	14.45	13.65	12.84	11.12	
15.20	14.45	13.63	12.83	11.08	
15.09	14.45	13.62	12.82	10.93	
15.08	14.41	13.59	12.73	10.85	
15.08	14.41	13.58	12.73	10.72	
15.07	14.40	13.56	12.72	10.70	
15.07	14.39	13.52	12.71	10.67	
15.05	14.32	13.45	12.64	10.63	
15.03	14.27	13.41	12.63	10.59	

APPENDIX C: SELECTION ZONE RESULTS

(Expressed in performance indexes, high-to-low)

Majors FY '72

Selected (37):

17.23	15.28	14.52	13.89
16.57	15.26	14.50	13.74
16.54	15.13	14.49	13.70
16.08	15.08	14.45	13.45
15.91	15.06	14.42	13.39
15.45	15.03	14.29	13.33
15.42	14.93	14.26	13.22
15.41	14.90	14.11	
15.41	14.73	13.98	
15.29	14.53	13.95	

Non-selected (19):

14.42	13.19
14.32	13.18
14.22	13.08
13.96	13.04
13.94	13.04
13.76	12.74
13.73	12.64
13.52	12.52
13.43	12.02
13.33	

Majors FY '73

Selected (16):

15.97	15.03	13.94	12.07
15.46	14.66	13.86	
15.08	14.08	13.86	
15.05	14.07	13.83	
15.03	13.97	13.14	

Non-selected (12):

14.77	13.17
14.28	12.61
13.76	12.58
13.69	12.27
13.49	12.11
13.21	11.97

Captains FY '72

Selected (50):

16.56	14.75	13.92	12.98
16.36	14.72	13.89	12.93
16.28	14.71	13.84	12.86
16.26	14.65	13.62	12.82
15.73	14.64	13.58	12.72
15.72	14.62	13.52	12.62
15.70	14.58	13.45	12.45
14.99	14.40	13.41	12.13
14.99	14.39	13.34	11.77
14.96	14.26	13.34	11.60
14.79	14.16	13.32	10.67
14.77	14.09	13.18	
14.76	13.98	13.14	

Non-selected (18):

12.98	10.70
12.23	10.13
12.19	9.87
12.09	9.26
11.95	9.00
11.92	
11.85	
11.62	
11.60	
11.56	
11.33	
11.29	
11.18	

Captains FY '73

Selected (29):

15.76	14.80	14.00	12.87
15.56	14.79	13.87	12.73
15.49	14.73	13.76	12.29
15.37	14.63	13.34	12.15
15.33	14.61	13.26	12.13
15.26	14.47	13.24	
14.96	14.17	13.08	
14.90	14.08	12.95	

Non-selected (10):

14.69	10.19
13.65	10.03
13.34	
12.93	
12.31	
11.92	
11.83	
10.63	

APPENDIX D: SAMPLE RANK-SUM TEST

Majors FY '73

Non-selectees:

Selectees:

$N_1 = 12$

Rank

11.97	1
12.11	3
12.27	4
12.58	5
12.61	6
13.17	8
13.21	9
13.49	10
13.69	11
13.76	12
14.28	20
14.77	22

Sum = 111 = K

$N_2 = 16$

Rank

12.07	2
13.14	7
13.83	13
13.86	14.5
13.86	14.5
13.94	16
13.97	17
14.07	18
14.08	19
14.66	21
15.03	23.5
15.03	23.5
15.05	25
15.08	26
15.46	27
15.97	28

$$Z = \frac{K + \frac{1}{2} - N_1(N_1 + N_2 + 1)/2}{\sqrt{N_1 N_2 (N_1 + N_2 + 1)/12}}$$

$$Z = \frac{111 + .5 - 12(12 + 16 + 1)/2}{\sqrt{12 \times 16(12 + 16 + 1)/12}}$$

$$= \frac{111.5 - 174}{\sqrt{464}}$$

$$= \frac{-62.5}{21.541}$$

$$= -2.902$$

The area under the normal curve to the left of $Z = -2.902$ is less than .0019. This procedure follows the rank-sum technique as established by Dixon and Massey (1957).

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KEY WORDS

LINK A

LINK B

LINK C

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Selection



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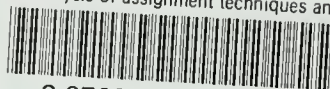
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